# The role of athletic identity in the development of athlete burnout: The moderating role of psychological flexibility

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# When does athletic identity help athletes reduce emotional exhaustion? The moderating role of psychological flexibility


## Abstract

Inconsistent findings have been reported regarding the association between athletic identity and emotional exhaustion, a key dimension of athlete burnout, indicating a need to identify boundary conditions that shape the role of athletic identity in the development of emotional exhaustion. To reconcile the variable data, the authors propose that psychological flexibility, identified as "the ability to contact the present moment more fully as a conscious human being and to change or persist in behavior when doing so serves valued ends" (Hayes, Luoma, Bond, Misuka, & Lillis, 2006, p. 8), can moderate the association between athletic identity and the development of emotional exhaustion. Using a two-wave, time-lagged survey, a total of 132 college athletes (mean age = 19.97 years) completed assessments of athletic identity at Time 1, psychological flexibility at Time 1, and emotional exhaustion at Time 1 and at Time 2 three months later. The results indicated that athletic identity is positively associated with the development of emotional exhaustion over time among individuals with low psychological flexibility but is negatively associated with emotional exhaustion for individuals with high levels of psychological flexibility. This study suggests that the association of athletic identity with increased or decreased emotional exhaustion over time depends on the athlete's attributes. Practically, our findings highlight the importance of understanding athletes' levels of psychological flexibility to prevent emotional exhaustion.


Key words: acceptance and commitment therapy, emotional exhaustion, athlete burnout, psychological flexibility, athletic identity

## Introduction

Athletic identity, the degree to which an individual identifies with their role as an athlete (Brewer, Van Raalte, & Linder, 1993), has received much attention in the field of sport psychology (Ronkainen, Kavoura, & Ryba, 2016) not only because athletes continuously sculpt their identities through both positive and negative sport experiences, such as winning and losing, but also due to the role of athletic identity in athlete burnout (Black & Smith, 2007; Gustafsson, Hassmén, Kenttä, & Johansson, 2008; Martin & Horn, 2013), which can result in reduced performance and increased rates of dropout (Gustafsson et al., 2008; Lonsdale & Hodge, 2011). On the one hand, a strong athletic identity could help athletes avoid burnout by fostering the motivation and energy to engage in activities related to their athletic role (Martin & Horn, 2013). On the other hand, a strong athletic identity could increase the chance of athlete burnout by leaving the athlete vulnerable to emotional difficulties following unexpected results such as losing games (Coakley, 1992; Gustafsson, Kenttä, & Hassmén, 2011).

Empirically, some studies have reported a negative relationship between athletic identity and burnout (Black & Smith, 2007; Martin & Horn, 2013; Raedeke, 1997), while other studies found no association (Gould, Tuffey, Udry, & Loehr, 1996; Verkooijen, van Hove, & Dik, 2012). These inconsistent findings indicate the need to elucidate the boundary conditions that can moderate the association between athletic identity and burnout. Moreover, previous studies have only examined the association between athletic identity and burnout using a cross-sectional design. We argue that such a research design is insufficient to understand the potential roles of athletic identity in the development of burnout. As such, we extend on the previous research by examining the relationships between athletic identity and changes in athlete burnout using a

time-lagged design. In this way, we can more rigorously examine the association between athletic identity and the development of athlete burnout.

In brief, based on the two contrasting perspectives noted above, we hypothesize that an individual's ability to accept the present moment with a focus on achieving what is most valuable for the self - i.e., psychological flexibility (Hayes, Luoma, Bond, Masuda, & Lillis, 2006) - will shape the relationship between athletic identity and burnout. Different levels of psychological flexibility can allow athletes to face and cope with identity threat in different ways, which may moderate the association between athletic identity and development of athlete burnout. In summary, we expect that athletes with greater psychological flexibility and a strong athletic identify are likely to experience less burnout over time, whereas those with less psychological flexibility and a strong athletic identify are likely to experience more burnout over time. In this study, we specifically focus on emotional exhaustion, a key dimension of athlete burnout, for several reasons. First, there is controversy regarding the concept of athlete burnout because previous studies have found that the three athlete burnout dimensions (emotional exhaustion, reduced sense of accomplishment, and sport devaluation) may not be tightly associated and should be examined separately. For example, Martinent, Louvet, and Decret (2017) found that athlete burnout dimensions did not tend to develop in tandem. Lundkvist et al. (2017) showed that a reduced sense of accomplishment and sport devaluation vary substantially over weekly timespans. Second, among these three dimensions, there is a consensus that emotional exhaustion should be the core focus of studies on burnout (Gustafsson et al., 2011; Maslach, Schaufeli, & Leiter, 2001) because it reflects the athlete's energy resources. As the theoretical discussion on the association between athletic identity and burnout is primarily

centered on depletion of energy resources, we thus chose to focus on emotional exhaustion rather than the other dimensions.

The primary contribution of this study is the identification of psychological flexibility as a moderator of divergent associations between athletic identity and the development of athlete burnout. Our research provides a theoretical framework for understanding the circumstances in which athletic identity is positively or a negatively associated with the development of athlete burnout. Practically, such understanding provides coaches with information on the different implications of strengthening athletes' athletic identity on athlete burnout among those with different levels of psychological flexibility. Coaches can therefore utilize different approaches to help athletes prevent or overcome burnout experiences based on the athletes' characteristics (i.e., psychological flexibility).

**Athletic identity and the development of emotional exhaustion**

Athletic identity can have positive or negative effects on the development of athlete burnout because it can accentuate athletes' reactions to the achievements or challenges in their sport activities. For example, athletes who perform well are more likely to receive approval from others, such as coaches and teammates, which causes them to feel worthy (the self-worth motive), competent, and effective (Stets & Burke, 2000). In contrast, when athletes encounter failures, they experience difficulties in their athletic identity building process because their behavior is incongruent with their internal athletic role standards (Brewer, Selby, Linder, & Petitpas, 1999; Luyckx et al., 2013). Athletes with a stronger athletic identity will have stronger reactions to those achievements or challenges because these experiences provide information and feedback to support or challenge how they define themselves.

Because of its role in accentuating athletes' reactions to achievements and challenges,

athletic identity may have different implications for an athlete's process of self-regulation in sports and thus different effects on the development of athlete burnout. On the one hand, a stronger athletic identity could help the athlete enjoy achievement and face challenges, as it motivates athletes to focus on what they want to achieve and allow them to spend time and effort overcoming obstacles to achieving goals in an effort to support their self-identity (Brewer et al., 1993). Based on this perspective, athletes with a strong athletic identity should have less burnout, especially emotional exhaustion, over time because their strong athletic identity helps foster motivation and energy to engage in activities related to their athletic self-concept (Martin & Horn, 2013). On the other hand, a strong athletic identity could cause athletes to self-apply a higher performance evaluation standard and expose athletes to an increased risk of actual-ideal self-discrepancy, a known threat to maintaining athletic identity (Brewer et al., 1993). Accordingly, athletes with a stronger athletic identity may be more likely to experience higher levels of burnout, especially emotional exhaustion, over time because their identity may cause them to experience more challenges and increased feelings of frustration compared with those who do not believe being an athlete is important (Lamont-Mills & Christensen, 2006). Such negative striving experiences for those with a strong athletic identity can drain one's energy over time and make the individual feel tired and powerless to become who they want to be. As athletic identity can have positive or negative implications on the development of athlete burnout, we note the need to identify factors that can moderate the relationships between athletic identity and the development of burnout. We now turn to the moderating role of psychological flexibility.

**Moderating role of psychological flexibility**

Psychological flexibility is the ability to observe one's thoughts and feelings in a detached manner, which helps athletes to more easily accept aversive experiences because they can

recognize their thoughts, desires and feelings as passing events, which in turn reduces defensive reactions (Ritzert, Forsyth, Berghoff, Barnes-Holmes, & Nicholson, 2015). Athletes with greater psychological flexibility have the ability to fully understand their inner experiences and thereby integrate those experiences coherently with the self (Hayes et al., 2006) because a non-judgmental or detached approach enhances one's ability to notice and respond effectively to goal-associated opportunities in their current situation (Bond, Lloyd, & Guenole, 2013).

Based on the characteristics of psychological flexibility, we argue that athletes with higher levels of psychological flexibility and strong athletic identities tend to experience decreased emotional exhaustion over time for two primary reasons. First, athletes with higher psychological flexibility are more likely to accept and find ways to cope with aversive experiences such as failure or strain. Such acceptance and positive coping mechanisms will help those with a strong athletic identity to sustain the motivation and energy to engage in activities that maintain or reinforce their athletic self-concept. Second, athletes with higher levels of psychological flexibility tend to observe their thoughts and feelings in a detached manner. When athletes are able to recognize their sport experiences from a separate, wider and more inclusive stance, they may be less susceptible to automatic evaluations (such as a negative self-evaluation after losing), which allows athletes to seek out more positive athlete-related role expectations and thus gradually build their athletic roles. As such, for those with a stronger athletic identity, a detached perspective helps buffer negative experiences and allows them to focus on their positive resources (such as worthiness or competence) and enjoy their engagement in activities.

In contrast, those with lower levels of psychological flexibility and strong athletic identities tend to experience increased emotional exhaustion over time. As noted earlier, having a stronger athletic identity can expose athletes to increased risk of self-discrepancy and frustration. Such

158 negative implications will be stronger among athletes with lower psychological flexibility, as
159 they are more likely to hold onto aversive experiences after encountering obstacles or failures
160 and are unable to develop approaches to overcome such aversive experiences. In addition, for
161 athletes with lower levels psychological flexibility, the difficulties experienced from their
162 incongruence with athletic role standards will occupy their attention, preventing them from
163 effectively dealing with the challenges meeting their goals. They may thus spend more time and
164 effort dealing with the negative experiences rather than the problems underlying those
165 experiences, resulting in a negative loop that depletes energy over time.

166 Previous studies in this area have only investigated the relationship between athletic identity
167 and athlete burnout in a cross-sectional context (Black & Smith, 2007; Gustafsson et al., 2008;
168 Martin & Horn, 2013). To formally test the role of athletic identity in the development of
169 emotional exhaustion, we thus need to examine the change in emotional exhaustion. We
170 proposed the following hypothesis:

171 Hypothesis: Psychological flexibility will moderate the association between athletic identity
172 and changes in emotional exhaustion. Specifically, for those high in psychological flexibility,
173 athletic identity will be related to a decrease in emotional exhaustion over time. For those low in
174 psychological flexibility, athletic identity will be related to an increase in emotional exhaustion
175 over time.

176 **Method**

177 **Participants and procedures**

178 With the approval of the ethics board at National Taiwan University, the first author
179 approached athletes' head coaches to ask for their approval to contact the athletes directly. The
180 athletes read and signed the informed consent form, which indicated participants' ethical rights.

Confidentiality and anonymity were ensured. Measurements were administered to the athletes before their practices. These measures were completed in classrooms without the coach present. Athletes volunteered to participate in this study and were given NT$100 (approximately 3.3 USD) for each returning time point. At Time 1 (T1), 118 student-athletes were recruited. The athletes completed the athletic identity questionnaire (predictor variable) along with assessments regarding psychological flexibility (moderator) and athlete burnout (criterion variable). The athletes were asked to complete two questionnaires over the three-month period, with 183 athletes completing the Time 2 questionnaire. They were asked to once more complete the assessment of athlete burnout. Overall, 136 athletes participated in all the time points. An additional 6 athletes were excluded due to substantial missing data, resulting in a final sample of 132 (73 female) athletes.

The participants were Taiwanese intercollegiate varsity student-athletes recruited from the department of athletic performance and physical education in Taiwan. These athletes were involved in basketball, volleyball, tennis, track and field, soccer, and Tae Kwon Do and had a mean age of 19.97 years (*SD* = 1.31, range = 18-25; two athletes did not report their age). The athletes reported that they spent 13.29 (*SD* = 5.53) hours of training per week and had participated in their sports for 7.20 years (*SD* = 3.45). Most participants (55.9%) reported their highest level of competition to be at the international level, while 20.5% competed at the regional level and 23.6% at the intercollegiate level.

## Measurements

### Athletic identity

The degree to which an individual identified with the athlete role was assessed using the Athletic Identity Measurement Scale (AIMS) (Brewer & Cornelius, 2001). We used the short

version of AIMS (7-item; Brewer, Van Raalte, & Linder, 1993). Brewer and Cornelius (2001) indicated that the 7-item AIMS was a sound psychometric derivative of the 10-item measure, with an internal reliability coefficient of .81. The Chinese translation of the AIMS was adopted by (Ho & Lu, 2002), and their exploratory factor analysis confirmed the one-factor structure. The internal consistency was .91. The AIMS requires participants to respond to seven items designed to assess aspects of identification with the athlete role on a scale ranging from 1 *(strongly disagree)* to 7 *(strongly agree).* Athletic identity is represented by a total composite score generated by summation of the scores for the 7 items. Higher AIMS scores represent stronger identification with the athlete role. The internal consistency was .85 in our study.

**Psychological flexibility**

The degree of an individual's psychological flexibility was assessed using the 7-item Acceptance and Action Questionnaire-II (AAQ-II) (Bond et al., 2011). Chang, Chi, Lin, and Ye (2017) translated the AAQ-II into Chinese. The participants indicated scores for each item ranging from 1 *(almost never)* to 7 *(almost always)*; lower scores reflect greater psychological flexibility. First, confirmatory analysis was performed with 154 university students, and the original item #6 was eliminated because of a poor factor loading. The remaining six items showed a satisfactory fit ($\chi 2$ (9) = 17.98, CFI = .98, NNFI = .96, RMSEA = .077, SRMR = .046). Moreover, the test-retest reliability within a 10-month interval was high ($r$ = .65, $p$ < .01). Second, the Chinese version of the AAQ-II also showed factor invariance with undergraduate athletes ($N$ = 170) and students ($N$ = 154), which indicates that there are no significant differences regarding the AAQ-II between the two groups. Third, the nomological validity was examined in the athlete sample ($N$ = 76). We found that the AAQ-II score was negatively correlated with positive affect ($r$ = -.37, $p$ < .001). Moreover, the AAQ-II score was positively

related to negative affect ($r$ = .67, $p$ < .001) and depression ($r$ = .70, $p$ < .001). The internal consistency was .81, .82, and .78 for the analyses described above, respectively. Overall, the data supported the reliability, factorial invariance and nomological validity of the Chinese version of the AAQ-II across athlete and student samples. One sample item is "I worry about not being able to control my worries and feelings". The internal consistency was .84 in our study.

**Emotional exhaustion**

The levels of emotional exhaustion in the athletes were assessed using items from the Athlete Burnout Questionnaire (Raedeke & Smith, 2001). Lu et al. (2006) translated the ABQ into Chinese. Only the four items referring to the athlete's emotional exhaustion were used for the present study (1. I feel overly tired from my sport participation. 2. I feel wiped out from my sport. 3. I feel physically worn out from my sport. 4. I feel like I don't have any energy for my sport). Previous studies using the Chinese ABQ have demonstrated its acceptable validity and reliability for Taiwanese athlete populations (Chen, Chen, Kee, & Tsai, 2009). The items in this instrument are presented on a scale from 1 *(almost never)* to 6 *(almost always)*. The internal consistency of the measurements at Times 1 and 2 was .90 and .93, respectively.

**Analysis**

We tested our hypothesis by estimating a model involving a latent difference score of emotional exhaustion from Time 1 to Time 2. According to (McArdle, 2009), a latent difference score is created by fixing and freeing specific estimates for parameters involving variables assessed at two adjacent time points (i.e., emotional exhaustion at Time 1 and Time 2). Specifically, a latent difference score in emotional exhaustion between Time 1 and Time 2 can be created by specifying (a) the predictive effect of emotional exhaustion at Time 1 on emotional exhaustion at Time 2 as 1, (b) the factor loading of emotional exhaustion at Time 2 on the latent

difference score for emotional exhaustion as 1, and (c) the variance of emotional exhaustion at Time 2 as 0. The latent difference score captures within-individual changes in emotional exhaustion between Time 1 and Time 2 and individual differences in such within-individual changes, enabling us to examine the interaction effect of athletic identity and psychological flexibility on the development of emotional exhaustion over time. As the difference score is specified as latent variables, latent-difference scores do not suffer from the issues associated with measurement error or highly restrictive assumptions when difference scores are obtained by direct subtraction (Little, Bovaird, & Slegers, 2006). Latent difference score modeling has been used widely (Wu, 2016; Wu, Griffin, & Parker, 2015) and was used recently in the field of sport psychology (Chen, Wu, Lin, & Ye, 2018).

After creating the latent difference score factor, we used an interaction term of athletic identity and psychological flexibility to examine their interaction effect (DeCoster, Iselin, & Gallucci, 2009) on the latent difference score factor. To prevent multicollinearity resulting from a high correlation between the first-order terms and the interaction terms (Jaccard & Turrisi, 2003), athletic identity and psychological flexibility were standardized ((X-M)/SD) prior to the construction of the interaction term. We built in Mplus (Muthén & Muthén, 2007) and estimated the model using Bayesian estimation. We used Bayesian estimation because our sample size is small for using estimators such as maximum likelihood estimation (Bollen, 1989), which relies on asymptotic or large-sample theories. In contrast, Bayesian estimation does not rely on asymptotic theory and can produce accurate estimates for small sample sizes (Lee, 2007). We used noninformative priors in our estimation[1].

After estimating the interaction effect, we followed the suggestion of Cohen, Cohen, West, and Aiken (2003) to present the interaction plot and perform a simple slope analysis

(Dawson & Richter, 2006) to depict the association between athletic identity and changes in emotional exhaustion at different levels of psychological flexibility.

## Results

Table 1 presents descriptive statistics and correlations among the variables. Athletic identity at Time 1 was negatively correlated with emotional exhaustion at Time 1 ($r$ = -.40; $p$ = .00) and Time 2 ($r$ = -.23; $p$ = .00). We also used a paired-samples $t$-test to determine whether emotional exhaustion changed from Time 1 to Time 2. The results showed that the mean level of emotional exhaustion did not significantly change from Time 1 ($M$ = 3.22, $SD$ = 1.15) to Time 2 ($M$ = 3.28, $SD$ = 1.29) ($t$ = -0.68, $p$ = .074). We now turn to the analysis focusing on individual differences in changes in emotional exhaustion from Time 1 and Time 2.

We next estimated a model as shown in Figure 1 to examine the interaction effect of athletic identity and psychological flexibility on the latent change score of emotional exhaustion from Time 1 to Time 2. In this model, we included age and gender as control variables to predict the latent change score. Figure 1 presents the estimates and indicates a significant interaction effect ($b$ = -.18; 95% credibility intervals = -.39, -.01). We used deviance information criterion (DIC), an index for Bayesian model comparison (Spiegelhalter, Best, Carlin, & van der Linde, 2002), to compare this model to a model imposing the interaction effect as zero, and found that our proposed model has a lower DIC value (366.84) and thus performs better than the alternative model (DIC = 371.29). Additionally, the $R^2$ value of the latent change score for emotional exhaustion increased from 0.16 to 0.19 from the model without to the model with the interaction effect.

Based on Aiken and West's (1996) suggestion, we created an interaction plot using one standard deviation above and below the means of athletic identity and psychological flexibility to

represent high and low levels of athletic identity and psychological flexibility. In addition, we performed simple slope analysis to further analyze the interaction effect (Dawson & Richter, 2006). Simple slope analysis indicated that the association between athletic identity and changes in emotional exhaustion was not significant when we used one standard deviation above or below the mean of psychological flexibility as the high (1 standard deviation above the mean; *b* = -.12, 90% credibility intervals = -.36, .07) or low cutoff values (1 standard deviation below the mean; *b* = .22, 90% credibility intervals = -.02, .48). We thus used 2.5 standard deviations above and below the mean of psychological flexibility to gauge the simple slope effect as it covers those having the highest (7) or lowest (1) scores for psychological flexibility in our sample. When a 90% credibility interval was applied, we found that athletic identity had a significant negative association with changes in emotional exhaustion at a very high level of psychological flexibility (2.5 standard deviations above the mean; *b* = -.40, 90% credibility interval = -.80, .-05). We found a positive association between athletic identity and changes in emotional exhaustion at a very low level of psychological flexibility (2.5 standard deviations below the mean; *b* = .49, 90% credibility interval = .02, .93). These findings suggest that for those with a very high level of psychological flexibility (approximately 7 on the 7-point Likert scale), having a stronger athletic identity is associated with a decrease in emotional exhaustion over time. For those with very low levels of psychological flexibility (scores approximately 1 on the 7-point Likert scale), having a stronger athletic identity is associated with an increase in emotional exhaustion over time.

We also performed analyses predicting emotional exhaustion at Time 2, only without including emotional exhaustion at Time 1 in the model, but did not find a significant interaction effect. Altogether, our findings suggest that the interaction effect between athletic identity and

psychological flexibility can only be detected when we focus on the development of emotional exhaustion in a longitudinal context. Finally, we performed the same analysis without including age and gender in order to fully use all data we obtained (n =132) and found the same results.

## Discussion

The purpose of this study was to examine the relationship between athletic identity and changes in emotional exhaustion by investigating the moderating role of psychological flexibility. In general, we found that athletic identity is positively related to the development of emotional exhaustion for individuals with psychological flexibility well below the mean and is negatively related to the development of emotional exhaustion for individuals with psychological flexibility well above the mean. Although we acknowledge that the effect size of the observed interaction effect is small (Cohen, 1988), Chaplin (1991) indicated that interactive effects are difficult to detect in field-based work, and they seldom contribute to more than 3% of the explained variance. Importantly, the observed interaction effect has both theoretical and practical implications, as discussed below.

Athletic identity has received attention in athlete burnout research. However, previous studies were typically cross-sectional in nature (Black & Smith, 2007; Martin & Horn, 2013; Raedeke, 1997), which may result in incomplete scientific conclusions (Hagger & Chatzisarantis, 2009; Ployhart & Ward, 2011). For example, we found a negative relationship between athletic identity and emotional exhaustion at Time 1 and Time 2 separately, consistent with the research findings from using cross-sectional surveys (Raedeke, 1997). Nevertheless, when we focused on changes in emotional exhaustion, athletic identity did not predict the changes directly, suggesting that we cannot simply rely on a cross-sectional association between athletic identity and emotional exhaustion to infer the role of athletic identity in the development of emotional

exhaustion over time. We thus remind sport psychologists that if their aim is to continually diminish emotional exhaustion in youth, they should not be satisfied with determining the variables correlated with emotional exhaustion but rather should focus on the factors that lead to lasting change. Moreover, the null association between athletic identity and changes in emotional exhaustion highlights the need to identify the boundary conditions to understand the relationship between athletic identity and development of emotional exhaustion.

Our findings on the moderating role of psychological flexibility provide several new insights at the theoretical and practical level. First, by examining the moderating role of psychological flexibility, our study offers an approach to reconcile the seemingly opposing hypotheses on the role of athletic identity in the development of emotional exhaustion. Specifically, we argue that the association of athletic identity with an increase or decrease in emotional exhaustion over time depends on the athlete's attributes, and we identified such an effect by analyzing different levels of psychological flexibility in athletes. Athletic identity can have a null, positive or negative association with the development of emotional exhaustion over time depending on athletes' level of psychological flexibility, which further indicates the complex role of athletic identity in the development of emotional exhaustion and confirms the value of finding boundary conditions to elucidate such complexity.

Second, our data highlight the need to investigate the role of psychological flexibility in addressing inner experiences and how such mechanisms shape the role of athletic identity in emotional exhaustion. By focusing on psychological flexibility as a moderator, we enhanced the understanding of the development of emotional exhaustion. Notably, athletic identity did not contribute to changes in emotional exhaustion, which independently emphasizes the importance of addressing the role of moderators to better understand emotional exhaustion. As Gustafsson et

al. (2011) stated, sports psychologists need to move beyond examining the main effects of traits and processes on emotional exhaustion because individuals' cognitions, emotions, and behaviors are not determined by a single factor. Rather, more research is needed to determine when, for whom and to what extent those factors provide contextual information for reducing emotional exhaustion. In this regard, the current findings add new knowledge to the literature by providing a new boundary condition for athletic identity.

Third, our study highlights the importance of a general tendency, such as psychological flexibility, in shaping domain-specific relationships such as athletic identity and emotional exhaustion. This result has significant implications for the literature because it reveals the need to consider both general and domain-specific factors to understand the development of emotional exhaustion. Previous studies support our claim by identifying psychological flexibility as a moderator in diverse domains. For example, clinical psychologists have found that women who report high levels of psychological flexibility have a high likelihood of receiving annual mammograms, regardless of breast cancer anxiety (Miller, O'Hea, Lerner, Moon, & Foran-Tuller, 2011). In work fields, psychological flexibility enhances the beneficial effects of job control on learning, performance, and mental health (Bond & Bunce, 2003; Bond & Flaxman, 2006). These studies illustrate that researchers cannot ignore individuals' thoughts and actions as a function of general and specific life domains. Thus, our results appropriately extend the ecological validity of psychological flexibility into sport.

In practical terms, our findings indicate that to prevent emotional exhaustion in athletes, coaches must understand athletes' levels of psychological flexibility and its role in facilitating a positive or negative association between athletic identity and the development of emotional exhaustion. Based on our findings, athletes with lower levels of psychological flexibility should

be given particular attention, as they tend to focus their attention on negative experiences rather than the problems, resulting in a negative loop that wears down their energy over time. For those with low psychological flexibility, coaches or sport psychologist may help them find effective ways to accept inner aversive experience or shift their attention to coping with underlying problems. For example, mindfulness-acceptance-based interventions, such as ACT (Hayes, Strosahl, & Wilson, 1999), may be useful for enhancing psychological flexibility. Developing a mindful and non-judgmental mindset enables athletes to accept their thoughts, beliefs, feelings, and actions to more easily manage these internal experiences (Mahoney & Hanrahan, 2011; Schwanhausser, 2009). Coaches and practitioners can integrate ACT components, such as acceptance of inner experiences, into athletes' daily practice. Nevertheless, as we found that athletic identity is only linked to increased emotional exhaustion for those who have very low psychological flexibility on the 7-likert scale, whether mindfulness-acceptance-based interventions and how to perform those interventions to improve those people's psychological flexibility should be investigate in the future as they may not be easily changed.

There are several limitations to keep in mind when interpreting these results. First, the current study is correlational in nature; therefore, causal effects cannot be determined. Thus, future research could use experimental designs that manipulate psychological flexibility to investigate its influence on athletes' psychological functions. Second, data were gathered through self-report questionnaires. Although questionnaires are appropriate for gathering information about internal and subjective processes, the sole reliance on a single information mechanism may artificially inflate correlations among constructs (Podsakoff & Organ, 1986; Spector, 1994). Future studies are recommended using multiple methods, such as peer evaluations or actual behavior outcomes. Third, we did not tie our design to a competition season and thus cannot take

a competition effect into account. While our examination is informative to indicate why athletic identity is important to the development of burnout/emotional exhaustion as it can influence athletes even during an off season, we also expect that our observed effect could be stronger during a competitive season. Future studies are thus encouraged to incorporate competition seasons into a research design in order to fully explore how competition events can influence the role of athletic identity in the development of burnout/emotional exhaustion.

In conclusion, athletes frequently experience pressure; as such, they constitute a high-risk population. Thus, identifying factors that prevent emotional exhaustion is an important task for sport psychologists. We present the first longitudinal study to demonstrate that athletic identity accounted for changes in emotional exhaustion. In addition, this study provides new insight into the field by identifying the role of low psychological flexibility in augmenting the association between athletic identity and the development of emotional exhaustion over time. These findings provide important information for sport researchers and practitioners designing programs that aim to prevent athlete emotional exhaustion.

## Footnote

1. We also used subjective (or, low, weakly) informative priors in our analysis. We follow a conventional idea using a normal distribution as a prior distribution to understand our hypothesized effects. We use N (0, 1) as a prior for the effect of athletic identity on the latent different change score of emotional exhaustion as we hypothesize that athletic identity can be either positively or negatively associated with the development of emotional exhaustion. We use N (-0.3, 1) for the effect of psychological flexibility on the latent different change score because based on what has been theorized and reported empirically in literature, psychological flexibility would have a negative association with the development of emotional exhaustion. Finally, we use N (-0.3, 1) for the interaction effect of athletic identity and psychological flexibility on the latent different change score as we expect that athletic identity will be negatively (positively) related to changes in emotional exhaustion when psychological flexibility is high (low), which should be captured by a negative interaction effect between athletic identity and psychological flexibility. We use -0.3 for the latter two effects to reflect our conservative expectation that there would be negative but not very strong effects. Results of analysis based on this set of priors are the same as those we reported based on non-informative priors.

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*Table 1*

*Descriptive statistics of variables*

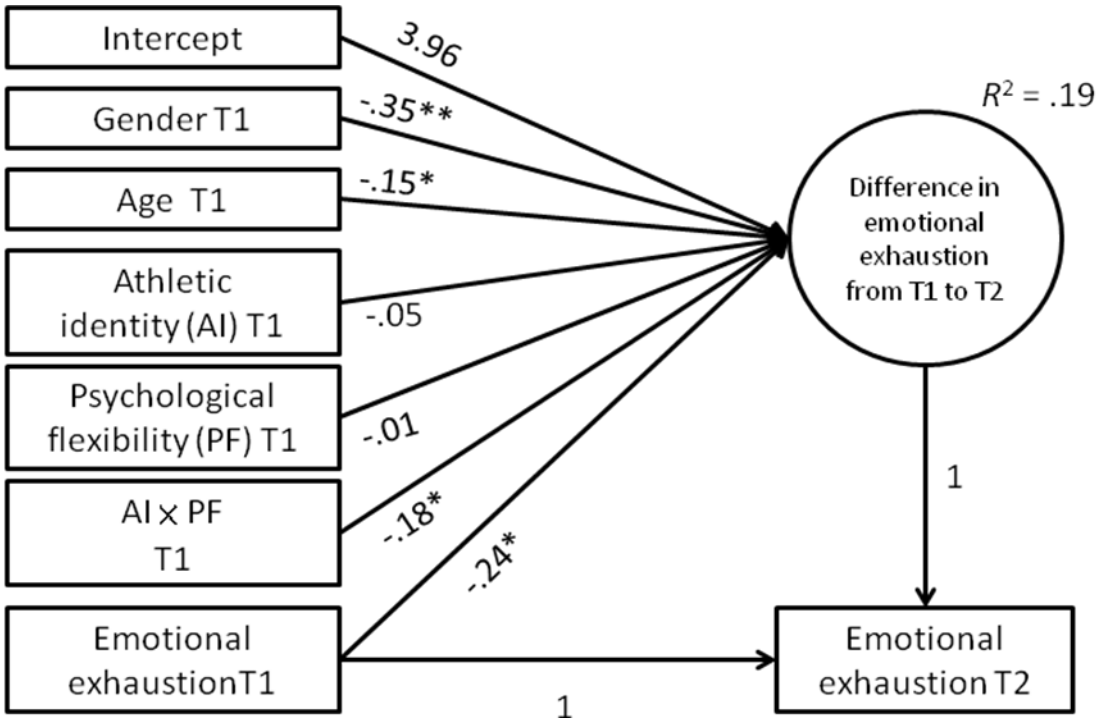
| | M | SD | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 1.Gender | -- | -- | -- | | | | | |
| 2. Age | 19.97 | 1.31 | -.20 | -- | | | | |
| 3.T1 Athletic identity | 4.25 | 0.62 | -.09 | -.06 | (.85) | | | |
| 4.T1 Psychological flexibility | 4.18 | 1.09 | -.11 | -.07 | .03 | (.81) | | |
| 5.T1 Emotional exhaustion | 3.22 | 1.15 | .07 | .08 | -.40** | -.30** | (.90) | |
| 6.T2 Emotional exhaustion | 3.28 | 1.29 | -.10 | -.08 | -.23** | -.20* | .66** | (.93) |

*Note.* $N = 132$. $N = 130$ for age variable as two parciitpants did not report their age. $T$ = time.

*$p < .05$. **$p < .01$.

Figure Captions

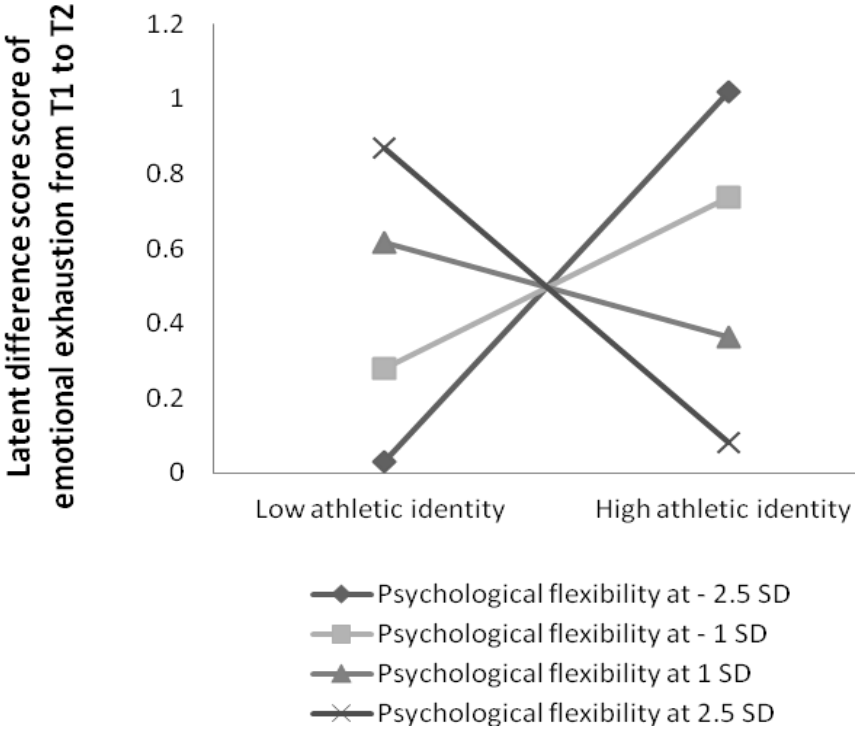
*Figure1. Estimates of a latent differences score model*




*Note. n=130.* $*p < .05$. $**p < .01$. The two precipitants who did not report their age were not included in this analysis.

602 *Figure2. Simple regression lines predicting change in emotional exhaustion at Time2 after*

603 *controlling emotional exhaustion at Time1.*

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